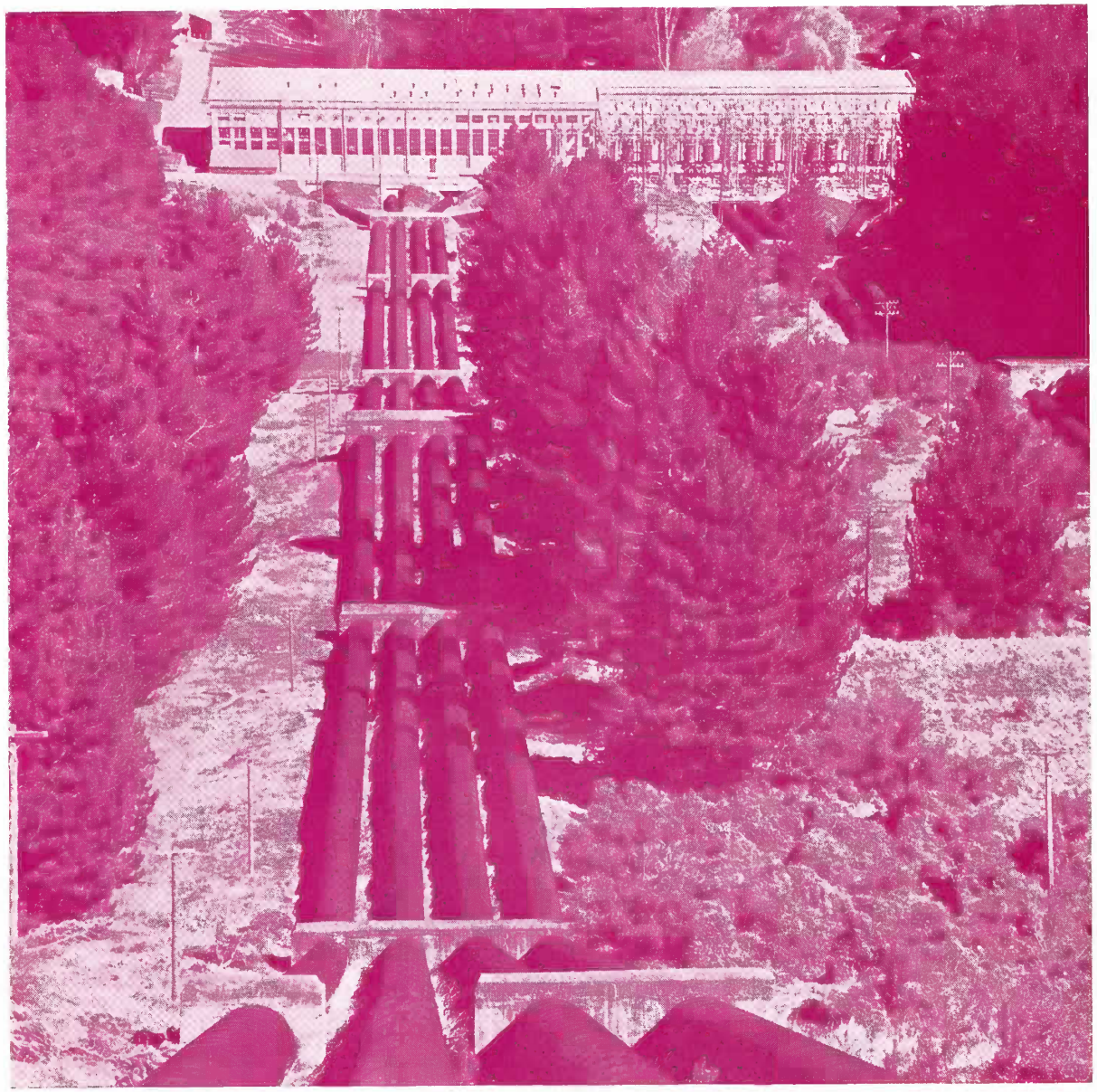
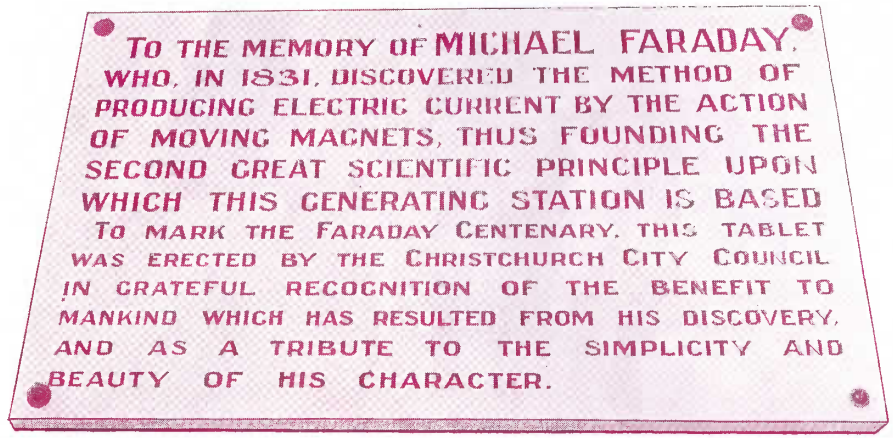


Photo: N.Z. Electricity

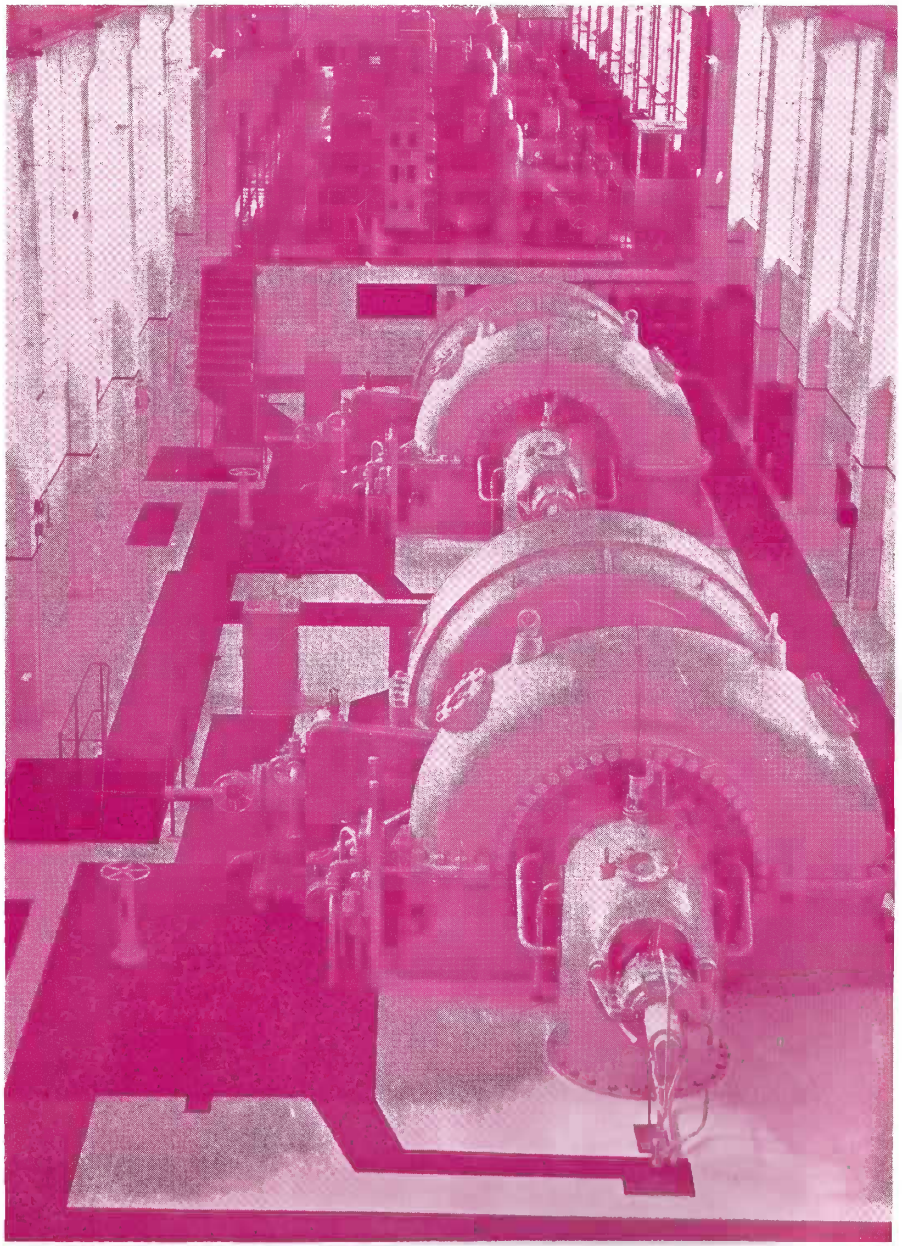
LAKE COLERIDGE POWER STATION

New Zealand Electricity

Lake Coleridge Power Station



Plaque erected at Coleridge by the Christchurch City Council *Photo: N.Z. Electricity*



Machine Hall *Photo: N.Z. Electricity*

Coleridge power station, officially opened on 25 November 1914, lies on the Rakaia River about 63 miles west of Christchurch.

Historically interesting as the first of the large hydro-electric schemes to be undertaken by the State, it was planned after the Aid to Waterpower Works Act of 1910 had given the Government authority to raise capital for the development of waterpower.

Construction work began in 1911, the station was operating towards the end of 1914, and by March 1915 Christchurch City was receiving regular supply.

Before Coleridge was developed, an agreement between the Government and the Christchurch City Council provided for the State to sell electric power in bulk to the city corporation, which was to assume the responsibility for local reticulation and the distribution of power within the city area.

The Lake Coleridge Waterpower Act of 1915 followed this principle of leaving retail distribution to local authorities, and, with the development of later hydro schemes, the same pattern has been adopted for electric supply throughout the Dominion.

As the demand for electricity increased, transmission lines spread, first to the country districts near Christchurch and later to the areas of other local bodies in the Canterbury Province.

As the national electric supply system continued to expand, Waitaki was developed and linked up with Coleridge. Later Arnold and then Monowai were joined to the system. By 1939 the network supplied the whole of the South Island, except the Nelson-Marlborough portion.

New Zealand's present industrial development, so largely dependent upon electric power, owes much to the foresight of the men who took the initiative leading to the development of the first scheme at Coleridge, to those who overcame the early difficulties in construction and transmission, and to those who fostered the use of electricity for industrial, commercial, and domestic purposes.

The station is manned by a station superintendent, his assistant, 15 men on rostered operating duties, 17 on maintenance both inside and outside the station, and 2 who look after the diversion works where the Harper River is channelled into Lake Coleridge (see diagram).

The scheme makes use of a difference of 500 ft in altitude between the river and Lake Coleridge. Water is taken from the lake by two tunnels beneath the ridge on the south-western edge of the lake to the surge chambers and thence through steel penstocks down to the powerhouse beside the Rakaia River.

The larger of the tunnels is 7,383 ft in length and 11 ft high, the smaller is 6,952 ft long and 8 ft high. Both are of horseshoe-shaped cross-section. The two original penstocks from the first surge chamber are 4 ft 4 in. in diameter and divide to supply four generators.

Two more penstocks of the same diameter have been added to these, and from the second surge chamber come three penstocks of the same diameter decreasing from 7 ft to 5 ft along their length and supplying three newer machines—as the powerhouse was originally built for only six machines, it was necessary in 1924 to extend its length to 335 ft to provide for the present nine machines.

Three 66,000-volt lines feed into the South Island system at Hororata and two similar lines cross the Southern Alps by way of Arthurs Pass to the West Coast.

STATISTICS

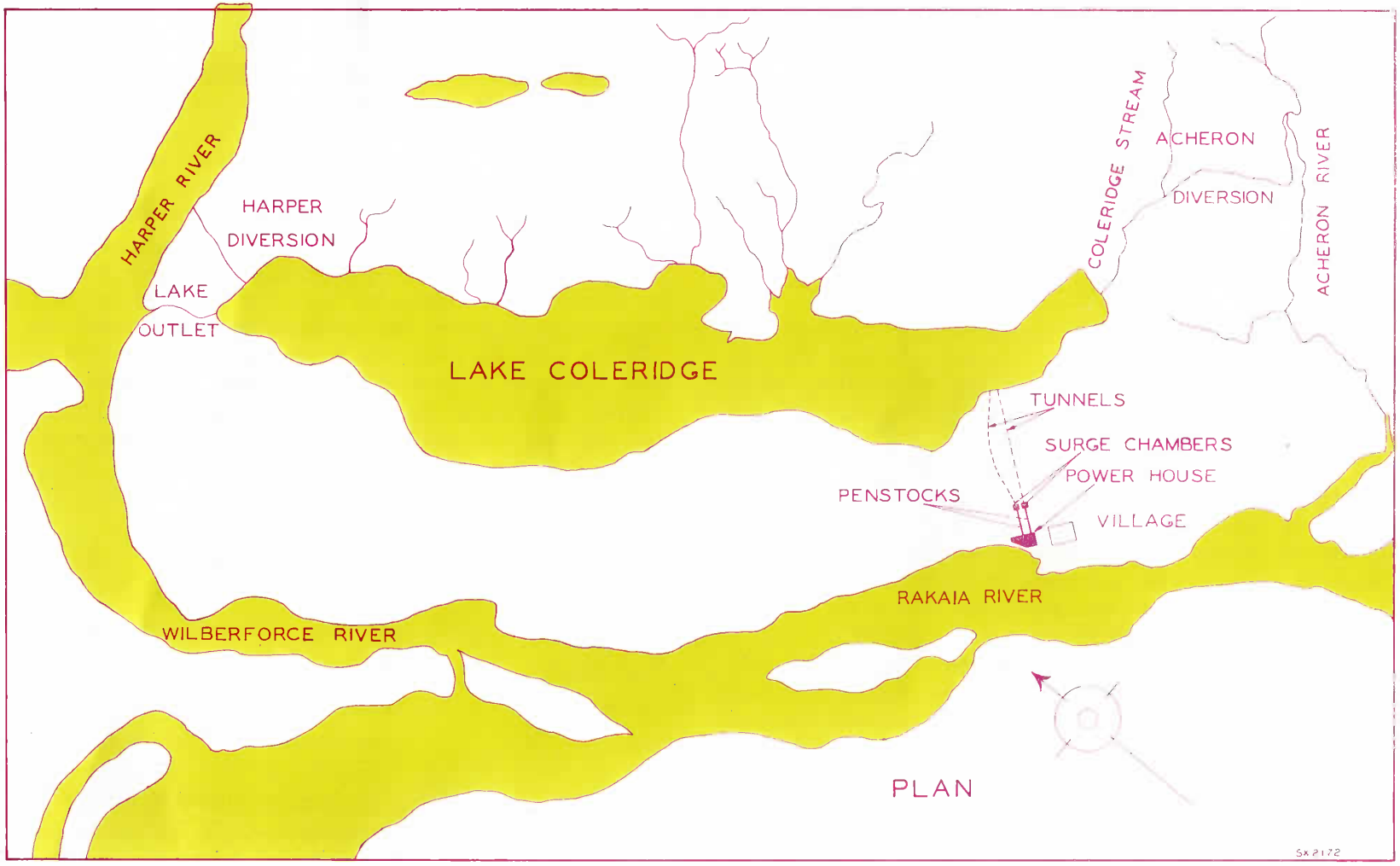
Annual energy output into national system	145 GWh
Total kilowatt rating	34,500 kilowatts
Turbines	Horizontal Francis type
Generators	3 machines each of 1,500 kW commissioned in 1915
	1 machine of 1,500 kW commissioned in 1917
	1 machine of 3,000 kW commissioned in 1921
	1 machine of 3,000 kW commissioned in 1923
	2 machines of 7,500 kW commissioned in 1926
	1 machine of 7,500 kW commissioned in 1930

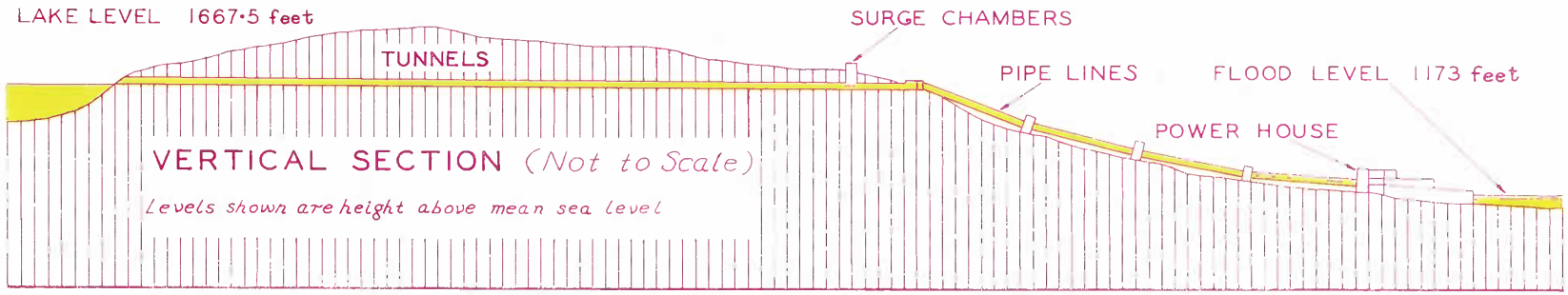
Tunnels

Length	1 of 7,383 ft and 1 of 6,952 ft
Height	1 of 11 ft and 1 of 8 ft

Penstocks

Number	7 built 1911, 1917, 1926, and 1930
Diameter	4 at 4 ft 4 in.
	3 at 7 ft





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